

**Notice of Allowability**

Application No.

10/806,933

Examiner

Nikita Wells

Applicant(s)

REINHOLD, BRUCE

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Application filed on 22 March 2004.
2. ☒ The allowed claim(s) is/are 1-87.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.  
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached  
1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.  
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.  
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 03/22/04, 07/13/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

Nikita Wells  
Primary Examiner  
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## **DETAILED ACTION**

### ***Specification***

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Allowable Subject Matter***

2. Claims 1-87 are allowed.
3. The following is an examiner's statement of reasons for allowance:

With respect to the independent claim 1, prior art fails to disclose or make obvious, in combination with other recited features of the claim limitations, a method comprising: confining ions to stable trajectories within an ion trap; exciting a subset of the ions along at least one transverse coordinate, rotating the transverse excitation into an excitation along an axial coordinate; and transferring at least some of the axially excited ions from the ion trap along the axial coordinate.

With respect to the independent claims 36 and 42, prior art fails to disclose or make obvious, in combination with other recited features of the claim limitations, an apparatus comprising: a housing which comprises a chamber for receiving ions and multiple electrodes surrounding the chamber, wherein the multiple electrodes define transverse and axial coordinates for ion motion within the chamber; a set of power supplies coupled to the multiple electrodes; and an electronic controller coupled to the set of power supplies, wherein during operation the electronic controller causes the set of power supplies to generate a series of electric fields in the chamber that confine ions to stable trajectories within the chamber,

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excite a subset of the ions along at least one of the transverse coordinates; rotate the transverse excitation into an excitation along the axial coordinate; and transfer some of the axially excited ions from the ion trap along the axial coordinate.

With respect to the independent claims 47, 65, 66, 80, and 81, prior art fails to disclose or make obvious, in combination with other recited features of the claim limitations, a method and apparatus comprising the generation of an axially extended RF trapping field to transversely confine ions; the formation of a spatially localized modification in the extended RF trapping field, wherein the modification imparts an axial force on incident ions that varies with a transverse displacement of each incident ion; and increasing a transverse oscillation amplitude of a subset of the ions from a first ion trapping region, wherein the subset of ions comprises ions having a selected mass-to-charge ratio, and directing the ions toward the spatially localized modification to cause some of the ions to penetrate through it and not others.

The dependent claims 2-35, 37-43, 44-46, 48-64, 67-79, and 82-87, are allowable by virtue of their dependence upon the independent claims 1, 36, 42, 47, 66, and 81, respectively.

### *Drawings*

4. New corrected formal drawings are required in this application because the submitted drawings contain hand marked labels and notation. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

*Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Makarov et al. (2004/0222369 A1) disclose a tandem mass spectrometer using a linear ion trap and a time of flight detector to collect mass spectra to form an MS/MS experiment.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikita Wells whose telephone number is (571) 272-2484. The examiner can normally be reached on 8:30 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The central fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read "Nikita Wells". The signature is fluid and cursive, with the first name "Nikita" and the last name "Wells" clearly distinguishable.

Nikita Wells, Primary Examiner  
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October 25, 2005